

WHAT IS CLAIMED IS:

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1. A process for the wet chemical treatment of semiconductor wafers with treatment liquids, comprising the steps of firstly treating the semiconductor wafers with an aqueous HF solution;

then treating the semiconductor wafers with an aqueous O₃ solution; and

then treating the semiconductor wafers with a liquid selected from the group consisting of water and an aqueous HCl solution;

whereby these treatment steps forming a treatment sequence B₂.

2. The process as claimed in claim 1,

wherein the treatment sequence B₂ is preceded by a treatment B₁ of the semiconductor wafers with an aqueous ~~HCl~~
SC-1 solution.

3. The process as claimed in claim 1,

wherein the treatment sequence B₂ is followed by a treatment B₃ comprising drying the semiconductor wafers.

4. The process as claimed in claim 3,

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wherein the treatment of the semiconductor wafers is sequenced according to the term $m^*(B_1 + B_2) + B_3$,
m being an integer number and the treatment B_1 and the treatment sequence B_2 being carried out in succession, and this taking place m times, before the drying treatment B_3 is performed.

5. The process as claimed in claim 1,

wherein in treatment sequence B_2 , the aqueous HF solution contains HF in a concentration of from 0.001% to 2% by weight and optionally HCl in a concentration of up to 2% by weight and optionally a surfactant; and
wherein all percents by weight are based upon the total solution weight.

6. The process as claimed in claim 1,

wherein in treatment sequence B_2 , the aqueous O_3 solution contains O_3 in a concentration of from 1 ppm to 30 ppm and is optionally exposed to megasonic waves.

7. The process as claimed in claim 1,

wherein the treatment liquid used last in the treatment sequence B_2 contains ozone and is optionally exposed to megasonic waves.

8. The process as claimed in claim 3,
wherein the drying treatment is carried out using a step
selected from the group consisting of centrifuging, using hot
water, using isopropanol, and using marangoni principle.

A 9. The process as claimed in claim 2,
wherein in treatment B₁ the aqueous ^{SC-1} ~~set~~ solution contains
a liquid selected from the group consisting of NH₄OH and H₂O₂, and
TMAH (= tetramethylammonium hydroxide) and H₂O₂.

10. The process as claimed in claim 1, comprising
carrying out each treatment with a treatment liquid in a
bath.

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